

3-Terminal 1.5A Negative Voltage Regulator


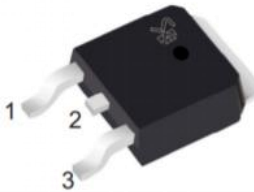
Features

- Output current in excess of 1.5A
- -5,-12V output voltages available
- Internal Thermal overload protection
- Short circuit protection
- Output transistor SOA protection

Description

The SK79XX series of three-terminal negative regulators are available in TO-220/TO-252 package, and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut-down and safe operating area protection, making it essentially indestructible.

Package

Pin Configuration(TO-220&TO-252)		
Pin NO.	Pin Name	Function
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>TO-220</p>  </div> <div style="text-align: center;"> <p>TO-252</p>  </div> </div>		

Part.NO.	Package
SK7905AU	TO-220
SK7912AU	TO-220
SK7905U	TO-252
SK7912U	TO-252

Absolute Maximum Ratings

Parameter	Value	Unit
Input Voltage	-35	V
Thermal resistance junction-air	65	°C/W
Thermal resistance junction-cases	5	°C/W
Operating Temperature	0~125	°C
Storage Temperature Range	-65~150	°C

Note:

1. Thermal resistance test board Size: 76.2mmX114.3mmX1.6mm(1S0P);JEDEC standard: JESD51-3, JESD51-7.

2. Assume no ambient airflow

SK7905AU/ SK7905U Electrical Characteristics

(Refer to test circuits, $0 < T_J < 125^{\circ}\text{C}$, $I_O = 500\text{mA}$, $V_I = -10\text{V}$, $C_I = 2.2\mu\text{F}$, $C_O = 1\mu\text{F}$, unless otherwise specified)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V_O	Output Voltage	$T_J = 25^{\circ}\text{C}$	-4.8	-5.0	-5.2	V
		$5\text{mA} < I_O < 1\text{A}$, $P_O < 15\text{W}$ $V_I = -7\text{V}$ to -20V	-4.75	-5.0	-5.25	V
ΔV_{LINE}	Line Regulation(Note)	$T_J = 25^{\circ}\text{C}$, $V_I = -7\text{V}$ to -25V		35	100	mV
		$T_J = 25^{\circ}\text{C}$, $V_I = -8\text{V}$ to -12V		8	50	mV
ΔV_{LOAD}	Load Regulation(Note)	$T_J = 25^{\circ}\text{C}$, $I_O = 5\text{mA}$ to 1.5A		10	100	mV
		$T_J = 25^{\circ}\text{C}$, $I_O = 250\text{mA}$ to 750mA		3	50	mV
I_q	Quiescent Current	$T_J = 25^{\circ}\text{C}$		3	6	mA
ΔI_q	Quiescent current change	$I_O = 5\text{mA}$ to 1A		0.05	0.5	mA
		$V_I = -8\text{V}$ to -25V		0.1	0.8	mA
$\Delta V_O / \Delta T$	Temperature coefficient of V_D	$I_O = 5\text{mA}$		0.5		mV/ $^{\circ}\text{C}$
V_N	Output noise voltage	$f = 10\text{Hz}$ to 100kHz , $T_A = 25^{\circ}\text{C}$		40		μV
PSRR	Ripple rejection	$f = 120\text{Hz}$, $\Delta V_I = 10\text{V}$	54	60		dB
V_D	Dropout voltage	$I_O = 1\text{A}$, $T_J = 25^{\circ}\text{C}$		2		V
I_{SC}	Short Circuit Current	$V_I = -35\text{V}$, $T_J = 25^{\circ}\text{C}$		10		mA

Note: Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

SK7912AU/ SK7912U Electrical Characteristics

(Refer to test circuits, $0 < T_J < 125^{\circ}\text{C}$, $I_O = 500\text{mA}$, $V_I = -19\text{V}$, $C_I = 2.2\mu\text{F}$, $C_O = 1\mu\text{F}$, unless otherwise specified)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V_O	Output Voltage	$T_J = 25^{\circ}\text{C}$	-11.5	-12	-12.5	V
		$5\text{mA} < I_O < 1\text{A}$, $P_O < 15\text{W}$ $V_I = -7\text{V}$ to -20V	-11.4	-12	-12.6	V
ΔV_{LINE}	Line Regulation(Note)	$T_J = 25^{\circ}\text{C}$, $V_I = -14.5\text{V}$ to -30V		12	240	mV
		$T_J = 25^{\circ}\text{C}$, $V_I = -16\text{V}$ to -22V		6	120	mV
ΔV_{LOAD}	Load Regulation(Note)	$T_J = 25^{\circ}\text{C}$, $I_O = 5\text{mA}$ to 1.5A		12	240	mV
		$T_J = 25^{\circ}\text{C}$, $I_O = 250\text{mA}$ to 750mA		4	120	mV

I_q	Quiescent Current	$T_J=25^{\circ}\text{C}$		3	6	mA
ΔI_q	Quiescent current change	$I_O=5\text{mA to }1\text{A}$		0.05	0.5	mA
		$V_I=-14.5\text{V to }-30\text{V}$		0.1	1	mA
$\Delta V_O/\Delta T$	Temperature coefficient of V_D	$I_O=5\text{mA}$		1.2		mV/ $^{\circ}\text{C}$
V_N	Output noise voltage	$f=10\text{Hz to }100\text{KHz}, T_A=25^{\circ}\text{C}$		200		μV
PSRR	Ripple rejection	$f=120\text{Hz}, \Delta V_I=10\text{V}$	54	60		dB
V_D	Dropout voltage	$I_O=1\text{A}, T_J=25^{\circ}\text{C}$		2		V
I_{SC}	Short Circuit Current	$V_I=-35\text{V}, T_J=25^{\circ}\text{C}$		10		mA

Note: Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used

Typical Application

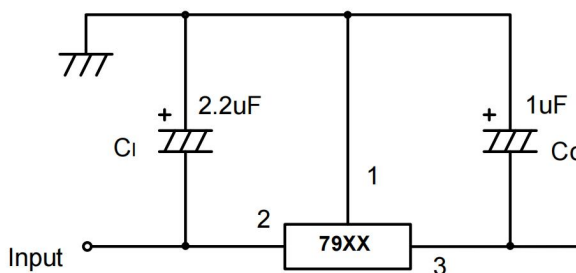


Fig.1 Negative fixed output regulator

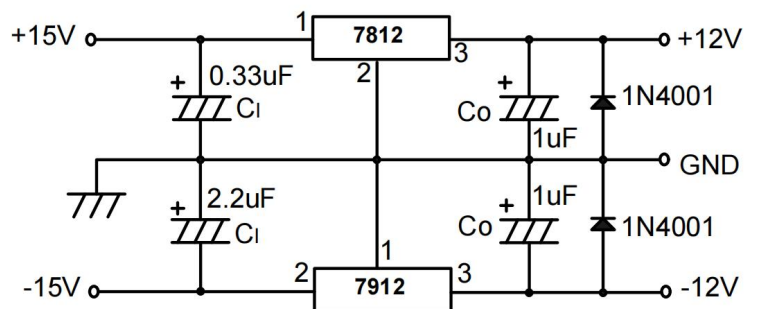
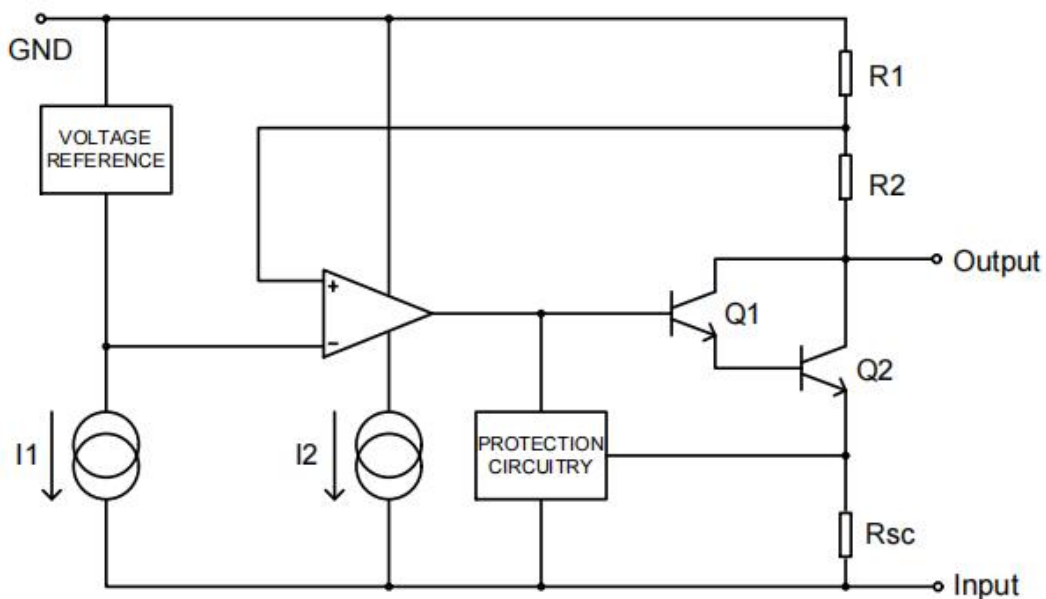


Fig.2 Split power supply($\pm 12\text{V}/1\text{A}$)

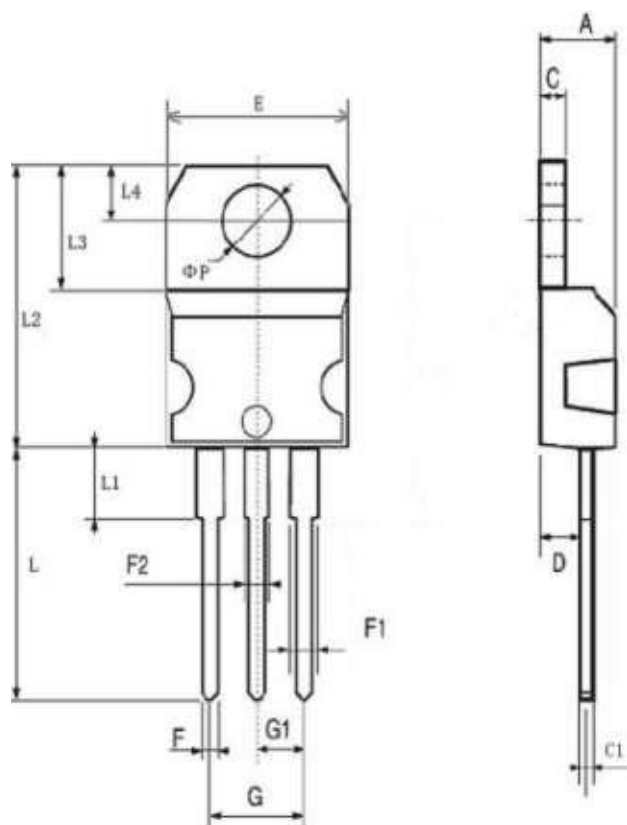
Block Diagram



Package Information

TO-220

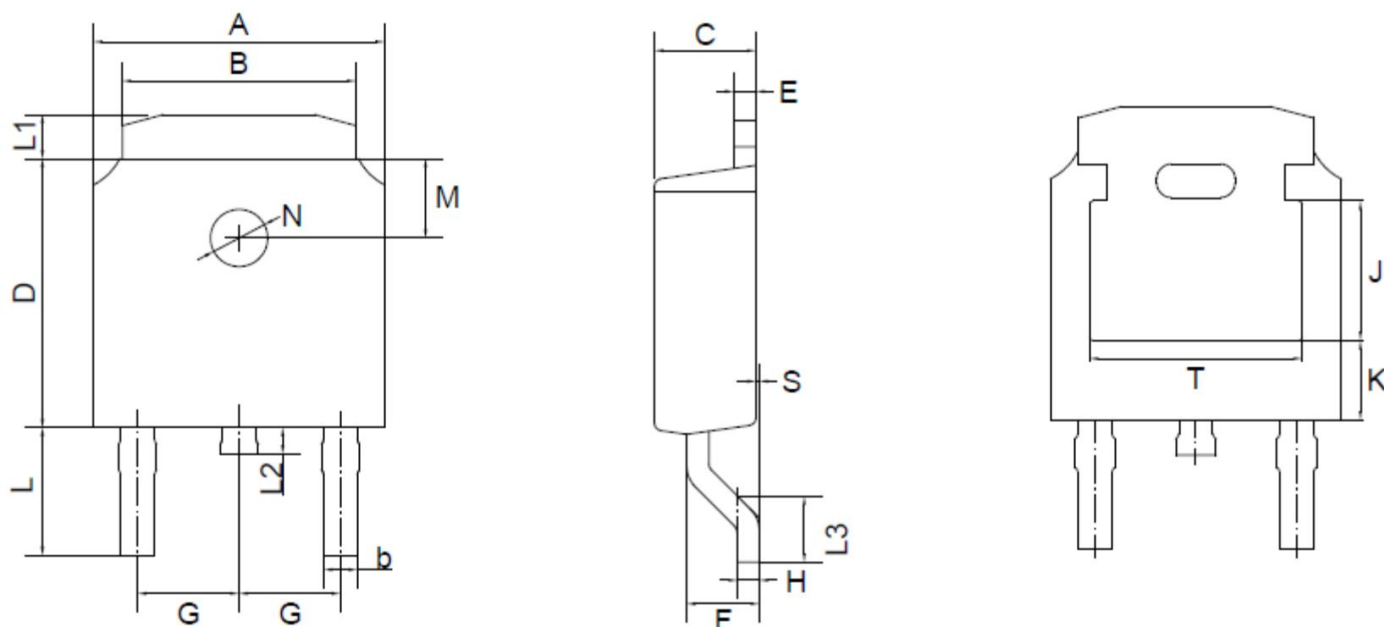
Dimensions in mm



符号 Symbol	最小值 Min	典型值 Typ	最大值 Max
A	4.4		4.6
C	1.2		1.32
C1	0.38		0.55
D	2.4		2.65
E	9.85		10.85
F	0.6		0.85
F1	1.22		1.4
F2	1.22		1.4
G	4.93	5.08	5.23
G1	2.39	2.54	2.69
L	13.1		13.9
L1	3.75		4.75
L2	15.25		15.75
L3	6.25		6.75
L4	2.65		2.85
Φp	3.75	3.84	3.95

TO-252

Dimensions in mm



TO-252(D-PAK) mechanical data

UNIT		A	B	b	C	D	E	F	G	H	L	L1	L2	L3	S	M	N	J	K	T
mm	max	6.7	5.5	0.8	2.5	6.3	0.6	1.8	2.29	0.55	3.1	1.2	1.0	1.75	0.1	1.8	1.3	3.16	1.80	4.83
	min	6.3	5.1	0.3	2.1	5.9	0.4	1.3	TYPICAL	0.45	2.7	0.8	0.6	1.40	0.0	TYPICAL	TYPICAL	ref.	ref.	ref.
mil	max	264	217	31	98	248	24	71	90	22	122	47	39	69	4	71	51	124	71	190
	min	248	201	12	83	232	16	51	TYPICAL	18	106	31	24	55	0	TYPICAL	TYPICAL	ref.	ref.	ref.

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